

IN THE SPECIFICATION:

Please replace paragraphs [0003], [0014], [0054], [0055], and [0058] with the following amended paragraphs.

[0003] Since the CVD apparatus adopts a method for forming thin films by chemical reaction of film forming gas as described above, the products generated by the reaction of the film forming gas also become adhered to the interior of the chamber, in addition to the substrate. When reaction product adheres to the interior of the chamber in this way, there is a risk that it may adversely affect film deposition, and hence cleaning of the chamber is carried out after a prescribed ~~times~~ time of deposition.

[0014] In particular, if the film forming gas contains a gas consisting of a compound containing tungsten atoms, then the temperature of the shower head is suitably raised to 70°C or above, and desirably, 70°C – 100°C, and more desirably, 75°C – 85°C. If the film forming gas contains a gas consisting of a compound containing tungsten atoms, then a tungsten layer having electrical conductivity is formed on top of the substrate. In recent years, with miniaturization of semiconductor integrated circuits, and the like, so-called tungsten plugs (W-plug) have come to be used for a portion of the ~~8888~~metallic wiring formed on a substrate, such as a semiconductor wafer, or the like, from the viewpoints of improving reliability of wiring and further improving evenness in wiring level. These tungsten plugs involve filling tungsten (W) into holes (through holes, Via holes, and the like) provided in the insulating layers in order to form interlayer connections. In this way, the present inventors discovered that if the temperature of the shower head is raised to the aforementioned 70°C or above when cleaning the interior of the chamber after forming a tungsten layer, then the removal efficiency of the reaction product adhering to the shower head is substantially improved.

[0054] Furthermore, when the ON signal of the MFC 62 is input to the control apparatus 80, the control apparatus 80 sends an ON signal to the heater plate 72. Thereby, the heater plate 72 starts to heat up, the temperature of the lead section 7 is

~~raise is raised~~, and hence the temperature of the shower head 4, and in particular, the face plate 45, is raised (temperature raising step).

[0055] Here, Fig. 3 and Fig. 4 illustrate an ~~experiment~~ experimental example to demonstrate how the efficiency of raising the temperature of the face plate 45 by means of the lid section 7 changes between a case where the temperature of the lid section 7 is raised only by halting supply of cooling water to the lid section 7 by means of the three-way valve 71 and the bypass passage 70 without performing heating by means of the heater plate 72, and a case where the temperature of the lid section 7 is raised by heating it by means of a heater plate 72, in addition to halting supply of cooling water to the lid section 7 by means of the three-way valve 71 and the bypass passage 70.

[0058] Here, the temperature of the shower head 4 during cleaning, and in particular, the temperature of the face plate 45, is suitably raised to a temperature of 50°C or above, desirably, 50°C – 150°C, and more desirably, 70°C – 100°C, and even more desirably, 75°C – 85°C. Since the temperature of the shower head 45 is maintained at a suitable temperature of approximately 20°C – 45°C during film formation, the efficiency of removing deposited reaction products adhering to the shower head 45 is increased by raising the temperature of the shower head 4 to 50°C or above during cleaning. As the temperature of the shower head 45 falls lower than 50°C, the effect of increased efficiency in removing deposits tends to become lost. Moreover, as the temperature of the shower head 4 becomes higher than 150°C, there the risk of a problem occurring in the chamber 2 tends to become higher.